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MAIN DIRECTIONS OF IMPROVING THE FUTURE COMPUTER TEACHER'S TRAINING ESSENCE

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ABSTRACT

The article is devoted to the systematic approach issues in determining the main directions of improving the future teachers' training essence of computer science.

Keywords: systematic approach, vocational training components, teaching stratification, methodological system of teaching, etc.

1. Introduction

Due to the education globalization, effective changes in the higher education system, new socio-cultural conditions in line with the ongoing reforms in all spheres of society require future computer science teachers to take on functions not previously used in pedagogical activities. Thoroughly, we consider it necessary to take a systematic approach to the future teachers' training of computer science, to modernize higher pedagogical education in order to develop students as scientifically, subjectively and methodologically mature professionals. The higher pedagogical education modernization and the systematic approach to the computer science teachers' training are closely interrelated and cannot be separated from each other.

2. Main part

At the present stage, it is necessary to solve the following problems of perspective development of the future computer science teachers' training system:

- 1. It is necessary to stop looking at the computer science subject as a field of information processes study in biological, technical, social systems. New views on the computer science subject in the school education have already been formed, but these views have little impact on the methodological features of the computer science teachers' training in pedagogical higher education institutions.
 - 2. Changing the computer science role in education:
- the transition from "computer literacy" to a general course in computer science, which contributes to the scientific worldview formation, the students' socialization, their preparation for future vocational education, thinking skills development;
- new ideas formation about the purpose, structure, computer science courses content in schools and secondary special education institutions (creation of a multi-level system of teaching computer science, its teaching from primary school, creation of mixed professional courses in this area in secondary special education institutions);
- considering the students' cognitive activity development importance, the use of new information technology methods and the information education tools introduction in the computer science teaching at school;
- Due to the fact that the cognition methods formed on the basis of information and communication technologies are important aspects of the scientific worldview of the modern person, to focus computer science education on the methods, knowledge and skills composition of general scientific and practical content.
- 3. The gnostic, design, organizational and communicative components Implementation in the computer science teachers' activities, i.e. the development of vocational training components in the methodological direction;
- 4. The stratification of computer science teaching is a relatively topical issue in methodology today. However, in the methodological training of future teachers of computer science in pedagogical higher education institutions, insufficient attention is paid to this. Accordingly, in the methodology course, teaching stratification , the skills development, the factors disclosure that improve students' interests, cognitive activity and motivation.
- 5. The computer science teachers' training in a pedagogical higher education institution requires the use of specialized courses in different specialties. Conformity to the specialization requires the introduction of new teaching methods and techniques (the educational process, distance learning, block-modular system design, etc.) in the learning process, while allowing for the effective teaching implementation. However, it should be noted that teachers are not yet ready to take full advantage of this. Therefore, it is necessary to adequately prepare future teachers of computer science for this activity at the stage of higher pedagogical education.
- 6. Although there is a real need from the society, the computer science teachers training for primary grades in pedagogical higher education institutions is not provided, however, the scientific-methodical and pedagogical base in this area is not formed.
- 7. It is known that the teacher is required to constantly work on himself, which is especially important for computer science teachers, because the teacher plays an important role in the dynamic changes in the methodological system of teaching computer science in school, which actively influences the systematic introduction of computer technology in education.
- 8. Today it is necessary to develop a computer science teaching system in schools, and, accordingly, to improve the methodological training of future teachers of computer science, which requires a pedagogical activity creation model of a modern computer science teacher.

The methodological system of teaching computer science, according to the well-known Russian didactic scientist V.V. Malev, includes the following [2, p. 19].

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- scientific planning of the educational process;
- interconnectedness and unity of theoretical and practical training;
- rapid mastering of educational materials in conditions of high level of difficulty;
- ensuring a high level of students' activity and independence;
- individual and collective activities combination;
- adequate provision of the educational process with technical means of teaching;
- a comprehensive approach implementation to the study various academic disciplines.

There are several types of typological approaches to ICT tools: for example, didactic orientation by criteria, programming, application in the subject area. Typologies such as visualization, equipment, control and evaluation, creation of information models, the methodological functions analysis of ICT tools are a more reasonable approach. Such approach requires a transition to a different scheme of determining the ICT place and role in education, ensuring the correct choice of ICT in professional activities by the teacher in accordance with the educational process requirements [1; 87-89-p.].

The application of this typology in the practical software tools mastering process by students in pedagogical higher education institutions allows them to be selected and effectively designed in accordance with the purpose.

In general, the education system development can be achieved with the help of:

- use of different structural systems in the educational process organization on the basis of appropriate pedagogical technologies;
- new models formation and curricula implementation specific to different stages of general secondary education;
 - change the evaluation system;
 - a new approach to the classroom system;
 - based on a combination of general and additional education;
 - taking into account the student's individual capabilities in determining the workload;
 - multivariate organization of the educational process;
 - formation of an educational environment appropriate to the information and communication technology base.

Thus, the information technology introduction has a certain positive effect on the education methods, structure and forms. Provision of educational institutions with computers and training software guarantees the education system quality improvement.

We believe that in the future, taking into account the comprehensive development of the education system in the democratization and humanization of the education system, new information technologies use in teaching will be carried out in two directions:

- 1. On the basis of multimedia technologies for different educational networks, based on the different forms characteristics of educational activities, general information technologies of teaching are created.
- 2. New information technology tools are used in the learning process in new components development of personal methodology. It should be borne in mind that an information-educational environment creation in a particular study field on the basis of a particular subject affects the educational process content, and as a result, the educational system may change.

To do this, first of all, the teacher must be provided with a software environment that allows him to design the learning environment, and, if necessary, be able to quickly update its content using automated learning and control programs.

The computer science teaching requires the functional problems solution in the teaching process using software and methodological complexes. Such complexes provide new opportunities for teachers and students. Because they allow you to combine curricula and manuals, use convenient methods and tools for teaching lectures, practical-laboratory, seminars, independent learning in the educational process organization.

In particular, the perspective direction of the information and communication technologies use includes:

The first, hypermedia and multimedia systems, an information-educational environment development focused on the e-learning literature use. Such an environment allows the integration of existing software and pedagogical tools, realizes the innovative methods using idea appropriate to new information technologies.

The second, it is necessary to improve general learning skills that help users to carry out quality information exchange, in particular, training competencies to access the necessary databases, funds of various libraries, resources of large scientific computing centers via the Internet.

The computer telecommunications and the ever-evolving global information networks development require learners to have strong knowledge and innovative skills.

Third, one of the most promising and challenging areas in the computer telecommunications technology use is the distance learning introduction.

A single telecommunications network development in the database is relevant as follows:

- the need for constant communication between users, as well as long-distance communication with educational institutions in or outside a particular country;
- the need to provide teachers, students and schoolchildren with access to information resources in our country and abroad;
 - such as the need to strengthen the management of the education process informatization.

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Fourth, in improving the management environment in the education informatization, the methodological training system of future computer science teachers will have qualitatively new functions relative to the software system using an integrative, systematic information and communication technologies description. Their main approaches include:

- socio-pedagogical approach, in which the education informatization acquires a social content in the professional and pedagogical development of future teachers, meets the individual needs for professional knowledge, increases the professional requirements and skills in the labor market;
- systematic approach, which focuses on the students' full involvement in the professional and methodological process in the computer technology, the creation and application of pedagogical software, teaching students to design computer technology;
- diagnostic approach, the heuristic nature of theoretical knowledge in modern pedagogical science and practice allows the computer technology application by modeling in accordance with scientific research and pedagogical processes. One of the main conditions for the development of diagnostic control activities in future teachers is the diagnostic control function implementation to determine an effective teaching strategy in accordance with the educational trend. The diagnostic control function is useful in teaching new information technologies development, which allows to increase the professional training effectiveness of future teachers;
- an informational approach is implemented in the collecting, processing, targeting, and applying information process. After all, the learning process is the receiving, storing, processing, transmitting process and applying learning information aimed at the learner's mental personality development;
- organizational-managerial approach, which is related to the pedagogical function of the teacher's activity and stems from the organizational structure of the learning process. The pedagogical system and pedagogical process management on the basis of information technology gives effective results. This allows for self-management, self-organization, and control of learning outcomes in personal activities.

3. Conclusion

In our opinion, the above leads to the theoretical and methodological conclusion that the information and communication technologies use in the teaching process is a prerequisite for pedagogical cooperation between the subjects. New information technologies use in the teachers' professional and methodological training in the field of informatics and information technology in the self-regulatory pedagogical system is an important aspect that forms the methodological basis for training future teachers of computer science.

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